



# California Regional Water Quality Control Board

## Los Angeles Region



Linda S. Adams  
Agency Secretary

320 W. 4th Street, Suite 200, Los Angeles, California 90013  
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: <http://www.waterboards.ca.gov/losangeles>.

Arnold Schwarzenegger  
Governor

March 25, 2010

Mr. Richard Steinhaus  
Acting Superintendent of Fleet Operations  
City of Long Beach Fire Department  
2600 Temple Avenue  
Long Beach, CA 90802

**GENERAL WASTE DISCHARGE REQUIREMENTS FOR GROUNDWATER CLEANUP AT  
PETROLEUM HYDROCARBON FUEL, VOLATILE ORGANIC COMPOUND And/Or  
HEXAVALENT CHROMIUM IMPACTED SITES—2241 ARGONNE AVENUE, LONG BEACH  
(ORDER NO. R4-2007-0019, SERIES NO. 121; CI NO. 9587)**

Dear Mr. Steinhaus:

We have received your application dated December 23, 2009, for coverage under the General Waste Discharge Requirements (WDRs) to implement a groundwater remediation pilot test project injecting persulfate at the site referenced above in Long Beach, California.

A leaking underground storage tank, dispenser island, and/or associated piping that were formerly located in the north-western portion of the fire station building are the apparent source of soil and groundwater impacts at the site. The UST and dispenser and the associated piping were removed in November 1995. Several site investigations were performed between 1995 and 1999, including installation of soil-vapor probes, groundwater monitoring wells, bio-venting wells and product recovery wells. A remediation system consisting of soil-vapor extraction, soil bioventing, free-phase product recovery, and surface support systems had been operated from April 2001 through July 2002. Groundwater monitoring and sampling has been conducted since first quarter of 2003. Free product removal has been periodically employed at the site since second quarter of 2005.

Residual constituents in soils are concentrated in the source area at an interval covering the capillary fringe and upper portion of the saturated zone. Groundwater contaminants consist of dissolved-phase fuels (mainly benzene, toluene, ethylbenzene, and xylenes [BTEX], up to 74,000 ug/L) and fuel oxygenates (mainly methyl tert-butyl ether [MTBE], up to 290 µg/L). Free product beneath the site is relatively immobile and confined to the source area with a portion floating on top of the water table and a portion trapped in pore spaces in the capillary fringe.

Despite the fact that past remediation efforts reduced the levels of contaminants in the subsurface, the extent of petroleum hydrocarbon contaminants in the groundwater still does not meet regional board guidelines for site closure. Therefore, further remediation with persulfate injection is proposed.

*California Environmental Protection Agency*



In the "In Situ Pilot Test Work Plan" dated December 2009 and prepared by your consultant, AECOM Technical Service, you proposed to inject persulfate through existing groundwater wells and direct-push bore holes. The Work Plan of the proposed work to remediate the residual groundwater contamination beneath the site was approved the Regional Board on March 24, 2010.

Regional Board staff has determined that the proposed discharge meets the conditions specified in Order No. R4-2007-0019, "*Revised General Waste Discharge Requirements for Groundwater Remediation At Petroleum Hydrocarbon Fuel, Volatile Organic Compound and/or Hexavalent Chromium Impacted Sites (General WDRs)*," adopted by the Los Angeles Regional Water quality Control Board on March 1, 2007.

Enclosed are your Waste Discharge Requirements, consisting of General WDRs Board Order No. R4-2007-0019 and Monitoring and Reporting Program No. CI-9587 and Standard Provisions. This Waste Discharge Requirements shall not be terminated without the regulatory oversight agency's prior approval.

The Monitoring and Reporting Program requires you to implement the monitoring program on the effective date of this enrollment under Regional Board Order No. R4-2007-0019. All monitoring reports shall be sent to the Regional Board, ATTN: Information Technology Unit.

When submitting monitoring or technical reports to the Regional Board per these requirements, please include a reference to Compliance File No. CI-9587, which will assure that the reports are directed to the appropriate file and staff. Do not combine other reports with your monitoring reports. Submit each type of report as a separate document.

To avoid paying future annual fees, please submit written request for termination of your enrollment under the general permit in a separate letter when your project has been completed and the permit is no longer needed. Be aware that the annual fee covers the fiscal year billing period beginning July 1 and ending June 30, the following year. You will pay the full annual fee if your request for termination is made after the beginning of the new fiscal year beginning July 1.

We are sending a copy of Order No. R4-2007-0019 only to the applicant. A copy of the Order will be furnished to anyone who requests it, or on line at: [http://www.waterboards.ca.gov/losangeles/board decisions/adopted orders/general orders/r4-2007-0019/r4-2007-0019.pdf](http://www.waterboards.ca.gov/losangeles/board%20decisions/adopted%20orders/general%20orders/r4-2007-0019/r4-2007-0019.pdf)

If you have any questions, please contact Dr. Rebecca Chou at (213) 620-6156 for WDRs administration matters, or Mr. Gregg Kwey at (213) 576-6702 for technical matters.

Sincerely,



Tracy J. Egoscue  
Executive Officer

*Chief Deputy ED  
for*

- Enclosure:
1. Board Order No. R4-2007-0019
  2. Standard Provisions for Reporting and Monitoring
  3. Monitoring and Reporting Program No. CI-9587

cc: Mr. Assaf A. Rees, AECOM

STATE OF CALIFORNIA  
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LOS ANGELES REGION  
REVISED MONITORING AND REPORTING PROGRAM NO. CI-9587  
FOR  
CITY OF LONG BEACH FIRE DEPARTMENT STATION 17  
2241 ARGONNE AVENUE, LONG BEACH  
(PERSULFATE INJECTION FOR GROUNDWATER CLEANUP)  
(ORDER NO. R4-2007-0019, SERIES NO. 121)

I. REPORTING REQUIREMENTS

- A. City of Long Beach (hereinafter Discharger) shall implement this revised monitoring program on the effective date of Regional Board Order No. R4-2007-0019. The first monitoring report under this program, for January to June 2010, shall be received at the Regional Board by July 15, 2010. Subsequent monitoring reports shall be received at the Regional Board according to the following schedule:

<u>Monitoring Period</u>	<u>Report Due</u>
January – June	July 15
July – December	January 15

- B. If there is no discharge or injection during any reporting period, the report shall so state. Monitoring reports must be addressed to the Regional Board, Attention: Information Technology Unit.
- C. By March 1<sup>st</sup> of each year, the Discharger shall submit an annual summary report to the Regional Board. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous calendar year. In addition, the Discharger shall explain the compliance record and the corrective actions taken, or planned, which may be needed to bring the discharge into full compliance with the waste discharge requirements (WDRs).
- D. Laboratory analyses – all chemical, bacteriological, and toxicity analyses shall be conducted at a laboratory certified for such analyses by the California Department of Health Services Environmental Laboratory Accreditation Program (ELAP). A copy of the laboratory certification shall be provided each time a new and/or renewal certification is obtained from ELAP.
- E. The method limits (MLs) employed for effluent analyses shall be lower than the permit limits established for a given parameter, unless the Discharger can demonstrate that a particular ML is not attainable and obtains approval for a higher ML from the Regional Board Executive Officer (Executive Officer). The Discharger shall submit a list of the analytical methods employed for each test and the

associated laboratory quality assurance/quality control (QA/QC) procedures upon request by the Regional Board.

- F. Groundwater samples must be analyzed within allowable holding time limits as specified in 40 CFR Part 136. All QA/QC samples must be run on the same dates when samples were actually analyzed. The Discharger shall make available for inspection and/or submit the QA/QC documentation upon request by Regional Board staff.
- G. Each monitoring report must affirm in writing that "All analyses were conducted at a laboratory certified for such analyses by the California Department of Health Services, and in accordance with current United States Environmental Protection Agency (USEPA) guideline procedures or as specified in this Monitoring Program." Proper chain of custody procedures must be followed and a copy of the completed chain of custody form shall be submitted with the report.
- H. Each monitoring report shall contain a separate section titled "Summary of Non-Compliance" which discusses the compliance record and the corrective actions taken or planned that may be needed to bring the discharge into full compliance with WDRs. This section shall be located at the front of the report and shall clearly list all non-compliance with WDRs, as well as all excursions of effluent limitations.
- I. The Discharger shall maintain all sampling and analytical results: date, exact place, and time of sampling; dates analyses were performed; analyst's name; analytical techniques used; and results of all analyses. ~~Such records shall be retained for a~~ minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.
- J. If the Discharger performs analyses on any groundwater samples more frequently than required by this Order using approved analytical methods, the results of those analyses shall be included in the report.
- K. In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized to demonstrate compliance with the requirements and, where applicable, shall include results of receiving water observations.

## II. PERSULFATE INJECTION MONITORING REQUIREMENTS

The Semi-Annually reports shall contain the following information regarding injection activities:

1. Location map showing injection points used for the persulfate. Groundwater monitoring wells shall not be used as injection points to avoid reduction of groundwater monitoring network, data bias, well screen clogging and alternation. Up to twelve injection points, as marked in Figure 3-1, are proposed. Additional injection points should be reviewed and approved by the Los Angeles Regional Water Quality Control Board prior to implementations.
2. Persulfate should not be injected into groundwater inside any floating free products plumes.
3. Written and tabular summary defining the quantity of persulfate injected per month to the groundwater and a summary describing the days on which the injection system was in operation.

**III. GROUNDWATER MONITORING PROGRAM**

The Discharger shall conduct groundwater monitoring at the site. Groundwater samples shall be collected from one up-gradient well MW-2, one source area wells MW-3 and two down-gradient wells MW-6 and MW-9 on a semi-annual basis to monitor the effectiveness of the in-situ groundwater remediation. Persulfate injection points shall not be used as monitoring points. Groundwater shall be monitored for the duration of the remediation in accordance with the following discharge monitoring program:

CONSTITUENT	UNITS	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Total petroleum hydrocarbons as gasoline (TPHg) and as diesel (TPHd)	µg/L	Grab	• Semi-Annually <sup>1</sup>
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)	µg/L	Grab	• Semi-Annually <sup>1</sup>
Methyl tertiary butyl ether (MTBE), Tertiary butyl alcohol (TBA), Tertiary amyl methyl ether (TAME), Di-isopropyl ether (DIPE), ether (ETBE)	µg/L	Grab	• Semi-Annually <sup>1</sup>

Ethanol Formaldehyde Acetone	µg/L	Grab	• Semi-Annually <sup>1</sup>
Total dissolved solids, Arsenic, Boron, Chloride, Bromide, Sulfate, Lead, Nickel, Cadmium, Manganese	mg/L	Grab	• Semi-Annually <sup>1</sup>
Oxidation-reduction potential	millivolts		• Semi-Annually <sup>1</sup>
Dissolved Oxygen	µg/L	Grab	• Semi-Annually <sup>1</sup>
Dissolved ferrous iron	µg/L	Grab	• Semi-Annually <sup>1</sup>
Total Chromium and chromium six <sup>2</sup>	µg/L	Grab	• Semi-Annually <sup>1</sup>
PH	pH units	Grab	• Semi-Annually <sup>1</sup>
Temperature	<sup>0</sup> F/ <sup>0</sup> C	Grab	• Semi-Annually <sup>1</sup>
Groundwater Elevation	Feet, mean sea level and below ground surface	In situ	• Semi-Annually <sup>1</sup>

<sup>1</sup> One week before injection and Semi-Annually thereafter

<sup>2</sup> The Discharger is required to monitor for total chromium and chromium six in the baseline, second and fourth Semi-Annually sampling. If detected at any of these sampling events, the total chromium and chromium six must be monitored Semi-Annually thereafter.

All groundwater monitoring reports must include, at a minimum, the following:

- a. Well identification, date and time of sampling;
- b. Sampler identification, and laboratory identification;
- c. Quarterly observation of groundwater levels, recorded to 0.01 feet mean sea level and groundwater flow direction.

#### IV. MONITORING FREQUENCIES

Monitoring frequencies may be adjusted to a less frequent basis or parameters dropped by the Executive Officer if the Discharger makes a request and the Executive Officer determines that the request is adequately supported by statistical trends of monitoring data submitted.

#### V. CERTIFICATION STATEMENT

Each report shall contain the following declaration:

"I certify under penalty of law that this document, including all attachments and supplemental information, was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

Executed on the \_\_\_\_\_ day of \_\_\_\_\_ at \_\_\_\_\_.

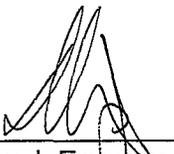
\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)"

VI. PUBLIC DOCUMENTS

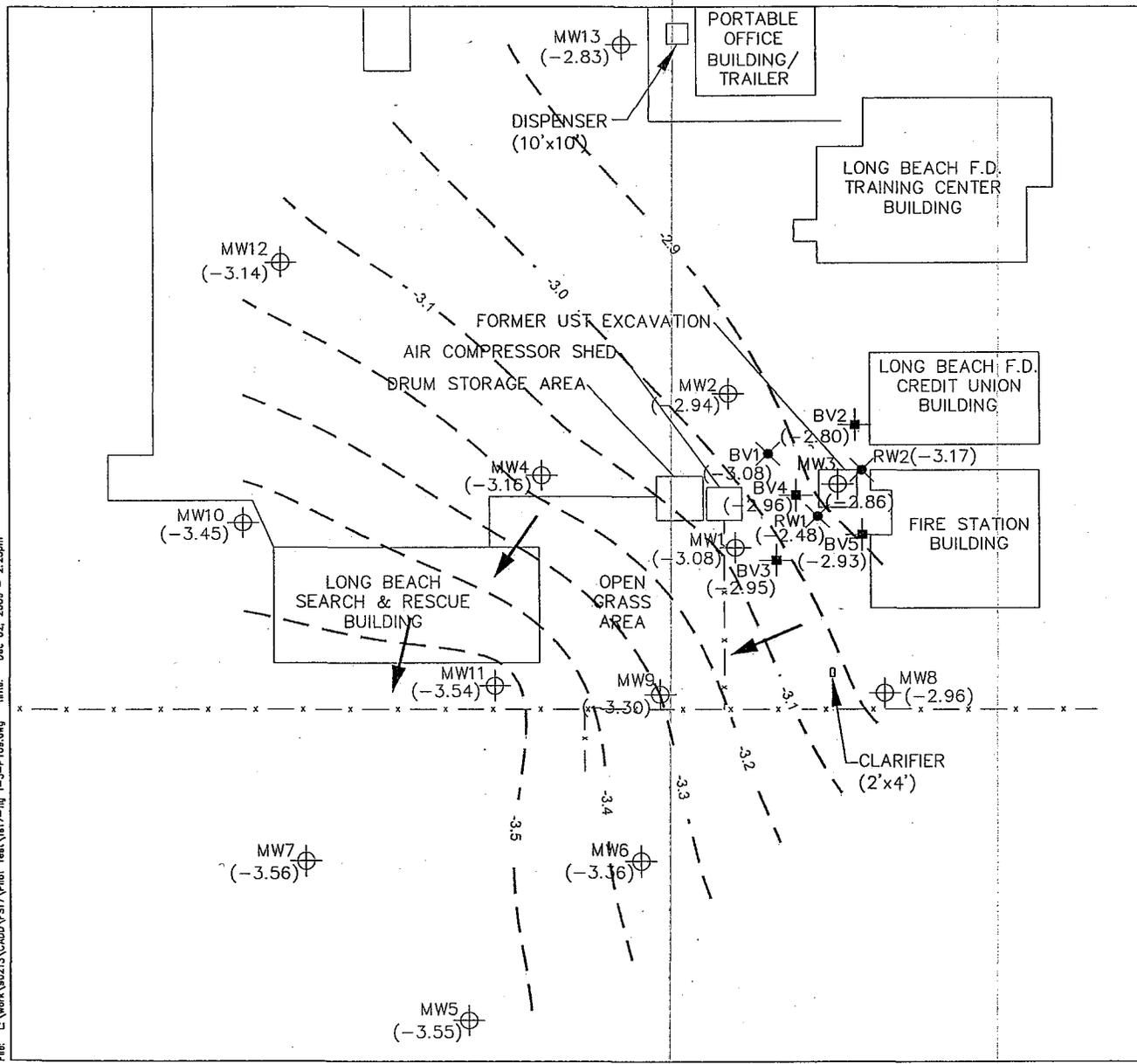
These records and reports are public documents and shall be made available for inspection during normal business hours at the office of the California Regional Water Quality Control Board, Los Angeles Region.

Ordered by:

  
Tracy J. Egoscue  
Executive Officer  
*Chief Deputy ED*  
*Tr*

Date: March 25, 2010

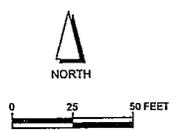
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ARGONNE AVENUE

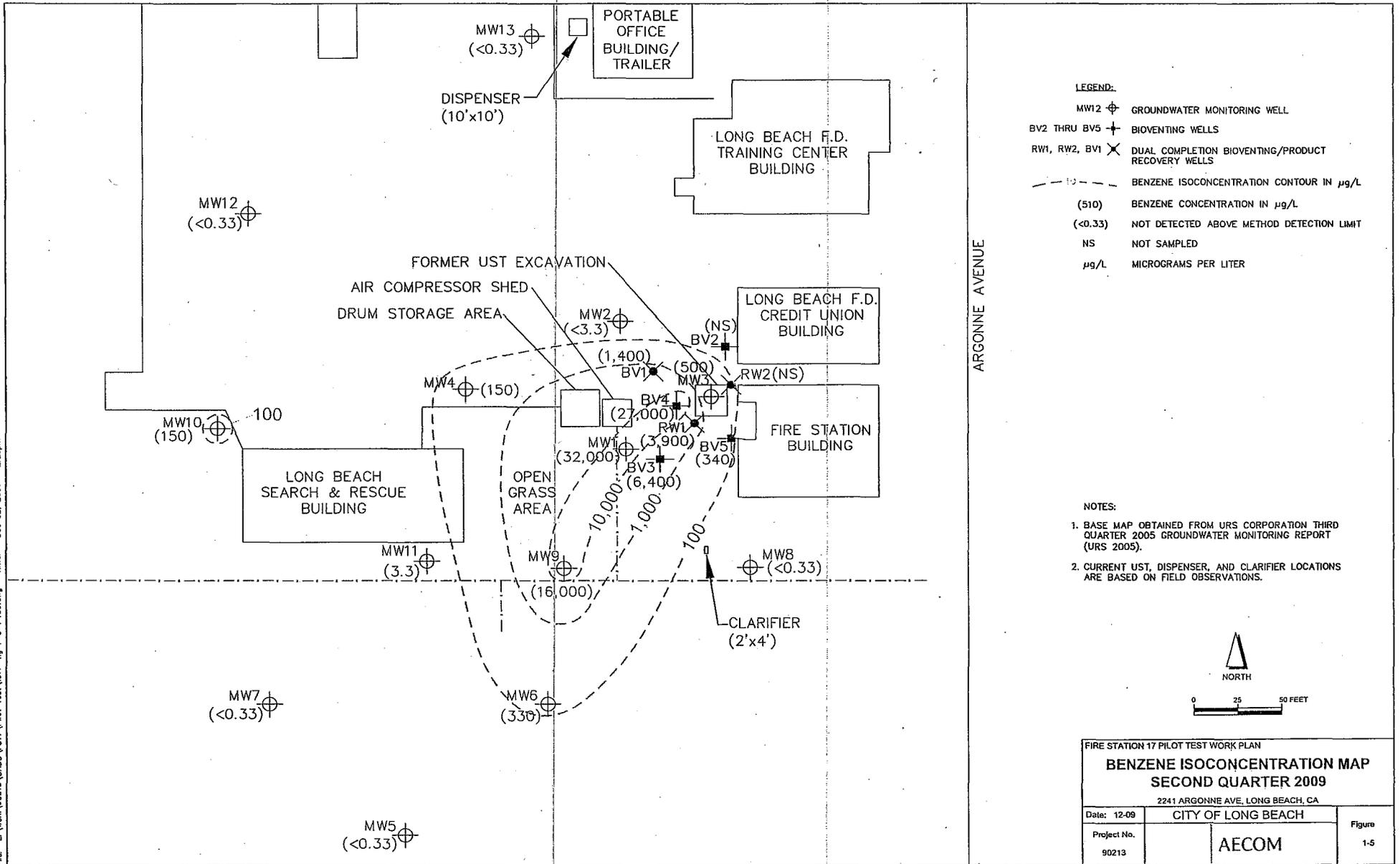
- LEGEND:**
- MW12 ⊕ GROUNDWATER MONITORING WELL
  - BV2 THRU BV5 ⊕ BIOVENTING WELLS
  - RW1, RW2, BV1 ⊗ DUAL COMPLETION BIOVENTING/PRODUCT RECOVERY WELLS
  - 3.4 - - GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MSL
  - (-1.53) - GROUNDWATER ELEVATION IN FEET ABOVE MSL
  - GROUNDWATER FLOW DIRECTION
  - MSL MEAN SEA LEVEL

- NOTES:**
1. BASE MAP OBTAINED FROM URS CORPORATION THIRD QUARTER 2005 GROUNDWATER MONITORING REPORT (URS 2005).
  2. CURRENT UST, DISPENSER, AND CLARIFIER LOCATIONS ARE BASED ON FIELD OBSERVATIONS.
  3. WELLS BV1, BV3, BV5, AND RW2 WERE NOT USED FOR CONTOURING.

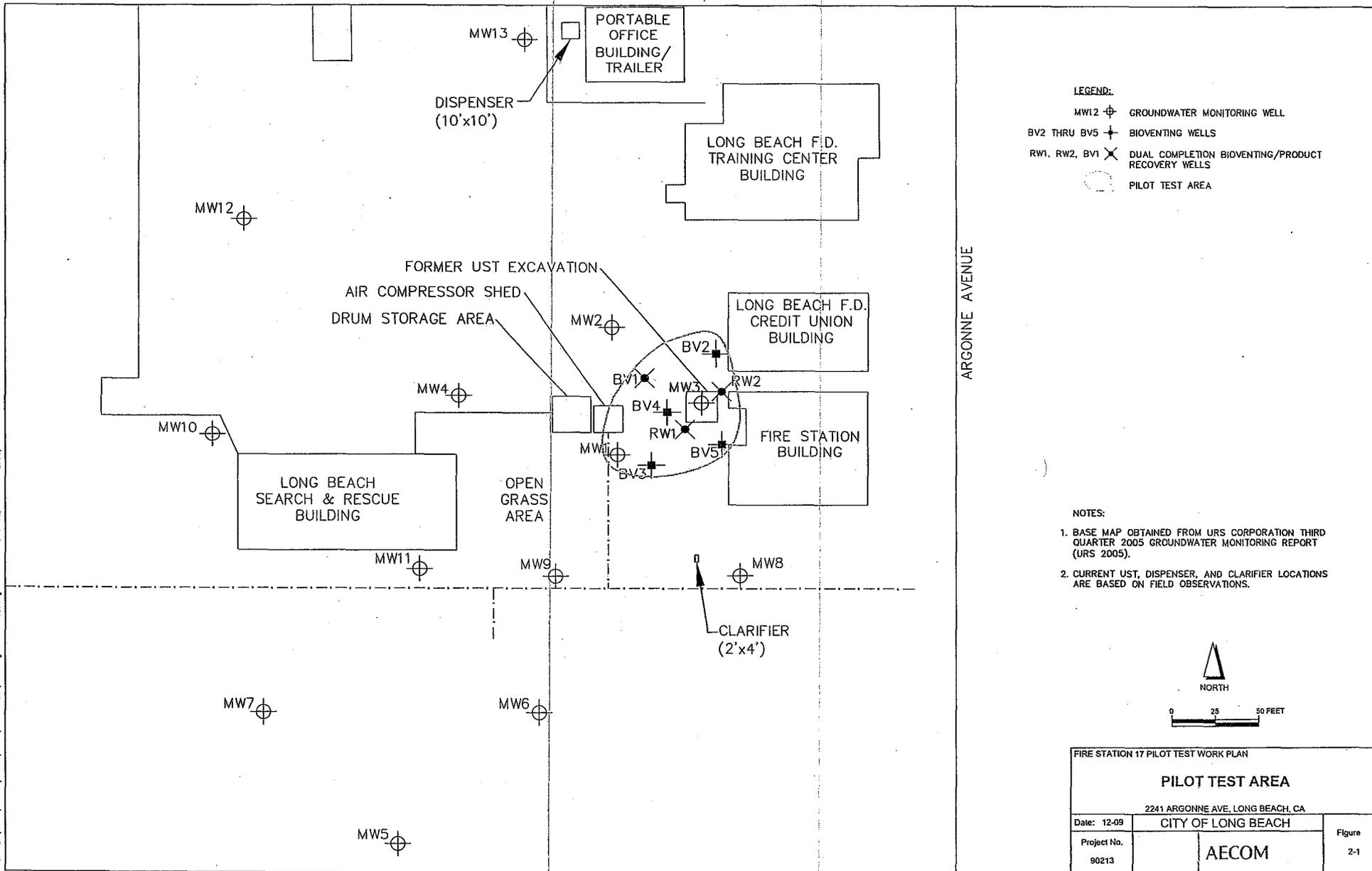


FIRE STATION 17 PILOT TEST WORK PLAN <b>GROUNDWATER POTENTIOMETRIC SURFACE</b> <b>SECOND QUARTER 2009</b> 2241 ARGONNE AVE, LONG BEACH, CA		
Date:	12-09	CITY OF LONG BEACH
Project No.	90213	AECOM
		Figure 1-3

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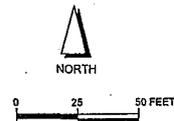
File: L:\work\90213\CADD\517\Pilot Test\1st7-fig 2-1-PT05.dwg Time: Dec 02, 2009 - 2:36pm



- LEGEND:**
- MW12 ⊕ GROUNDWATER MONITORING WELL
  - BV2 THRU BV5 ⊕ BIOVENTING WELLS
  - RW1, RW2, BV1 ⊗ DUAL COMPLETION BIOVENTING/PRODUCT RECOVERY WELLS
  - PILOT TEST AREA

**NOTES:**

1. BASE MAP OBTAINED FROM URS CORPORATION THIRD QUARTER 2005 GROUNDWATER MONITORING REPORT (URS 2005).
2. CURRENT UST, DISPENSER, AND CLARIFIER LOCATIONS ARE BASED ON FIELD OBSERVATIONS.



FIRE STATION 17 PILOT TEST WORK PLAN			
<b>PILOT TEST AREA</b>			
2241 ARGONNE AVE. LONG BEACH, CA			
Date: 12-09	CITY OF LONG BEACH		Figure
Project No. 90213	AECOM		2-1

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